

Brockton C.E Primary School





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Design and Technology



Level Expected at the End of EYFS

Expressive Arts and Design (Exploring and Using Media and Materials)

Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function

Expressive Arts and Design (Being Imaginative)

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Physical Development (Moving and Handling)

Children handle equipment and tools effectively, including pencils for writing.

Key Stage 1 National Curriculum Expectations

Design Pupils should be taught to:

- design purposeful, functional, appealing products for themselves and other users based on design criteria;
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Make Pupils should be taught to:

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing];
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

Evaluate Pupils should be taught to:

- explore and evaluate a range of existing products; evaluate their ideas and products against design criteria.

Technical Knowledge Pupils should be taught to:

- build structures, exploring how they can be made stronger, stiffer and more stable; explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking and Nutrition Pupils should be taught to:

- use the basic principles of a healthy and varied diet to prepare dishes; understand where food comes from.

Key Stage 2 National Curriculum Expectations

Design Pupils should be taught to:

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Make Pupils should be taught to:

- select from and use a wider range of tools and equipment to perform tasks [for example, cutting, shaping, joining and finishing], accurately;
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

Evaluate Pupils should be taught to:

- investigate and analyse a range of existing
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;
- understand how key events and individuals in design and technology have helped shape the world.

Technical Knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages];
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors];
- apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet;
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.



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Design and Technology : Progression of Skills



Intent

Our Design and Technology curriculum offers sequences of lessons to ensure pupils have progressively covered the knowledge, understanding and skills required in the National Curriculum. Design and Technology aims to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts. The iterative design process is fundamental and runs throughout our units. This iterative process encourages children to identify real and relevant problems, critically evaluate existing products and then take risks and innovate when designing and creating solutions to the problems. As part of the iterative process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process. Opportunities are provided for children to evaluate key events and individuals who have helped shape the world, showing the real impact of design and technology on the wider environment and helping to inspire children to become the next generation of innovators. Through these lessons, we intend to inspire pupils to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.

Implementation

Design and Technology skills and understanding are built into lessons, following an iterative process. In KS2 a sequence of lessons takes place over a half termly block and can alternate with Art. In EYFS/ Key stage 1 Art and DT may have shorter sequences of lessons, and be less discrete from one another. Through revisiting and consolidating skills, the lessons and resources help children build on prior knowledge alongside introducing new skills, knowledge and challenge. Units of work are often based on class themes to give purpose and meaningfulness as well as creating a cohesion and interest. The revision and introduction of key vocabulary is built into each lesson.

Impact

The impact of using the full range of resources, including display materials, will be seen across the school with an increase in the profile of Design and Technology. The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of Twitter to share children's work. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to want to continue building on this wealth of skills and understanding, now and in the future. Impact can also be measured through key questioning skills built into lessons, child-led assessment such as success criteria grids and summative assessments aimed at targeting next steps in learning.



Design and Technology Knowledge Progression



Themes	Class 1 Nursery/Key Stage 1	Class 2 Years 2 and 3	Class 3 Years 4, 5 and 6
Cooking and Nutrition	<p><u>Going Green – Salads</u> The children will learn about healthy eating as they explore a variety of fruit and vegetables, what they look like, taste like and feel like, as well as how to prepare fruits and vegetables through cutting, grating and peeling. They will design, make and evaluate their own salad.</p> <p><u>Splash! – Ice Lollies</u> Making a cooling ice cream/Ice lolly will get the children tasting, exploring and thinking about a range of frozen snacks already on offer. The children will be encouraged to experience the flavours, textures and colours of different ice creams and ice lollies. They will then design and make their own.</p>	<p><u>Africa – Fruit Smoothies</u> Design , make and evaluate our own fruit smoothies. This will give the children the opportunity to explore a variety of fruits. They will get their taste buds tingling as they taste a variety of fruits before choosing the fruit combination for their smoothie.</p>	<p><u>The Tudors – Gingerbread Houses</u> The children will get into the festive spirit by making their own edible houses. Medieval and Tudor people would create elaborate designs out of gingerbread using moulds. Constructing gingerbread was linked to religious beliefs at the time. The children will design, make and evaluate their ginger houses. They will also decorate their houses using a variety on confectionary.</p> <p><u>British Empire – British Food</u> The children learn all about great British food. They will explore some sweet and savoury national dishes of England, Scotland and Wales, before moving on to developing an understanding of how cuisines from other countries have influenced what is eaten in Britain today. Finally, children will practise the important life skill of how to plan and shop for a meal!</p>
Structures		<p><u>Romans – Shields</u> In this Roman Shields lesson the children will take a look at some Roman shields (called scutum), looking at size, patterns and colours. They are then challenged to design, make and evaluate Roman shields of their own, considering what materials, tools and equipment they will need to complete their designs</p> <p><u>Stone Age to the Iron Age – Stone Age Shelters</u> Design , make and evaluate our own Stone Age shelter The children will investigate the materials available during the Stone and Iron age, they will then explore how these structures can be made stable. The children will apply this knowledge when making and evaluating their own Stone Age shelters.</p>	<p><u>The Tudors – Gingerbread Houses</u> The children will get into the festive spirit by making their own edible houses. Medieval and Tudor people would create elaborate designs out of gingerbread using moulds. Constructing gingerbread was linked to religious beliefs at the time. The children will design, make and evaluate their ginger houses. They will also decorate their houses using a variety on confectionary.</p>
Textiles	<p><u>Hot and Cold – Easter Decorations</u> The children will develop their cutting and sewing skills whilst making a delightful decoration for Easter! They will explore, cut, sew, design, make and evaluate their decorations.</p> <p><u>Transport and Toys – Wheels and Axles</u> Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle.</p>	<p><u>Chocolate – Bags</u> The Aztecs were known for dyeing fabrics a deep scarlet colour courtesy of the cochineal beetle. In this unit the children will discover how fabrics are made, the differences between natural and synthetic fabrics as well as the impact that textile waste and fast fashion is having on our planet. The children will have the opportunity to design a handy bag using CAD.</p>	<p><u>The Greeks – Greek Sandals</u> The children will understand that the Ancient Greeks had simple resources available to them and that they made sandals which were fit for purpose out of those available resources. They will create a sandal out of leather/thick material and straps. To consider this question: Are these sandals fit for purpose?</p>
Mechanisms	<p><u>Light and Dark – Moving Pictures</u> The children will think of exciting and inventive ways to bring pictures to life through a variety of moving mechanisms. They will explore sliders, levers, pivots and wheel mechanisms and how they can be used to make different parts of a picture move.</p> <p><u>Transport and Toys – Wheels and Axles</u> Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle.</p>	<p><u>Egypt – Mechanisms – Shadufs</u> The children will research the Shaduf water carrying system that Egyptians used. They will look closely at the mechanism and re create their own. They will have the chance to look closely at the planning, designing and evaluating process of a product.</p>	<p><u>Mountains—Moving Toys</u> The children will investigate cam mechanisms and the toys that contain them. They will discover how different shaped cams can alter the movement of the follower and how to create a sturdy structure using a variety of tools and techniques.</p>
CAD and design / Materials		<p><u>Innovation and Invention – Light Box</u> The children will use woodworking DT tools and materials, card and paper or even scrap materials to make a decorative light box with illuminated words or letters. This unit can be combined with their science topic or Christmas to make a beautiful decoration.</p>	<p><u>China –The Shang Dynasty</u> Research the cities and societies of this dynasty, as well as the lives and roles of the people. Use your knowledge as the basis of your own board game about the Shang.</p>

Designing	Key Stage 1	Key Stage 2
<p>Understanding contexts, users and purposes</p>	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas in late KS2 <p>pupils should also:</p> <ul style="list-style-type: none"> • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • <i>develop a simple design specification to guide their thinking</i>
<p>Generating, developing, modelling and communicating ideas</p>	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • generate ideas by drawing on their own experiences • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by making templates and mockups • use information and communication technology, where appropriate, to develop and communicate their ideas 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • generate realistic ideas, focusing on the needs of the user • <i>make design decisions that take account of the availability of resources</i> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • generate innovative ideas, drawing on research • <i>make design decisions, taking account of constraints such as time, resources and cost</i>
Making	Key Stage 1	Key Stage 2
<p>Planning</p>	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • <i>plan by suggesting what to do next</i> • select from a range of tools and equipment, <i>explaining their choices</i> • select from a range of materials and components according to their characteristics 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • select tools and equipment suitable for the task • <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i> • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • <i>order the main stages of making</i> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • <i>produce appropriate lists of tools, equipment and materials that they need</i> • <i>formulate step-by-step plans as a guide to making</i>
<p>Practical skills and techniques</p>	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • <i>use techniques that involve a number of steps</i> • demonstrate resourcefulness when tackling practical problems

Evaluating	Key Stage 1	Key Stage 2
Own ideas and products	Across KS1 pupils should: <ul style="list-style-type: none"> • talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • <i>suggest how their products could be improved</i> 	Across KS2 pupils should: <ul style="list-style-type: none"> • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work In early KS2 pupils should also: <ul style="list-style-type: none"> • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products In late KS2 pupils should also: <ul style="list-style-type: none"> • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • <i>evaluate their ideas and products against their original design specification</i>
Existing products	Across KS1 pupils should explore: <ul style="list-style-type: none"> • what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products 	Across KS2 pupils should investigate and analyse: <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants In early KS2 pupils should also investigate and analyse: <ul style="list-style-type: none"> • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused In late KS2 pupils should also investigate and analyse: <ul style="list-style-type: none"> • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
Key events and individuals	Not a requirement in KS1	Across KS2 pupils should know: <ul style="list-style-type: none"> • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
Technical Knowledge	Key Stage 1	Key Stage 2
Making products work	Across KS1 pupils should know: <ul style="list-style-type: none"> • about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable • <i>that a 3-D textiles product can be assembled from two identical fabric shapes</i> • <i>that food ingredients should be combined according to their sensory characteristics</i> • <i>the correct technical vocabulary for the projects they are undertaking</i> 	Across KS2 pupils should know: <ul style="list-style-type: none"> • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • <i>that materials can be combined and mixed to create more useful characteristics</i> • that mechanical and electrical systems have an input, process and output • <i>the correct technical vocabulary for the projects they are under taking</i> In early KS2 pupils should also know: <ul style="list-style-type: none"> • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • <i>that a single fabric shape can be used to make a 3D textiles product</i> • <i>that food ingredients can be fresh, pre-cooked and processed</i> In late KS2 pupils should also know: <ul style="list-style-type: none"> • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • <i>that a 3D textiles product can be made from a combination of fabric shapes</i> • <i>that a recipe can be adapted by adding or substituting one or more ingredients</i>

Cooking and Nutrition	Key Stage 1	Key Stage 2
Where food comes from	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> • that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught 	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
Food preparation	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> • how to name and sort foods into the five groups in The eatwell plate • that everyone should eat at least five portions of fruit and vegetables every day • how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating 	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i> • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health



Brockton C.E. Primary School

2 Year Rolling Program - Design and Technology



	KS1	Autumn	Spring	Summer
	Knowledge Progression	<p>Designing design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> <p>Make select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing, select from and use a wide range of materials and, including construction materials according to their characteristics.</p> <p>Evaluate explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.</p> <p>Technical knowledge explore and use mechanisms [for example, wheels and axles], in their products.</p>	<p>Designing Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> <p>Make Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping and finishing).</p> <p>Evaluate Explore and evaluate a range of existing products.</p> <p>Technical Knowledge About the simple working characteristics of materials</p>	<p>Design Design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>Make Select from a range of tools and equipment, explaining their choices</p> <p>Follow procedures for safety and hygiene Use a range of food ingredients</p> <p>Evaluate Talk about their design ideas and what they are making Make simple judgements about their products and ideas against design criteria Suggest how their products could be improved</p> <p>Technical Knowledge How to name and sort foods into the five groups in The eatwell plate That everyone should eat at least five portions of fruit and vegetables every day How to prepare simple dishes safely and hygienically, without using a heat source How to use techniques such as cutting, peeling and grating</p>
Year A	Topic	<p style="text-align: center;">Light and Dark - Moving Pictures</p> <p>The children will think of exciting and inventive ways to bring pictures to life through a variety of moving mechanisms. They will explore sliders, levers, pivots and wheel mechanisms and how they can be used to make different parts of a picture move.</p>	<p style="text-align: center;">Hot and Cold - Textiles, Easter Decorations</p> <p>The children will develop their cutting and sewing skills whilst making a delightful decoration for Easter! They will explore, cut, sew, design, make and evaluate their decorations.</p>	<p style="text-align: center;">Going Green - Food and Nutrition, Salads</p> <p>The children will learn about healthy eating as they explore a variety of fruit and vegetables, what they look like, taste like and feel like, as well as how to prepare fruits and vegetables through cutting, grating and peeling. They will design, make and evaluate their own salad.</p>
	KS1	Autumn	Spring	Summer
	Knowledge Progression	<p>Designing Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> <p>Make Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping and finishing).</p> <p>Evaluate Explore and evaluate a range of existing products.</p> <p>Technical Knowledge About the simple working characteristics of materials</p>	<p>Designing design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> <p>Make select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing, select from and use a wide range of materials and components, including construction materials according to their characteristics.</p> <p>Evaluate explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.</p> <p>Technical knowledge explore and use mechanisms [for example, wheels and axles], in their products.</p>	<p>Design Design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>Make Select from a range of tools and equipment, explaining their choices</p> <p>Follow procedures for safety and hygiene Use a range of food ingredients</p> <p>Evaluate Talk about their design ideas and what they are making Make simple judgements about their products and ideas against design criteria Suggest how their products could be improved</p> <p>Technical Knowledge How to name and sort foods into the five groups in The eatwell plate That everyone should eat at least five portions of fruit and vegetables every day How to prepare simple dishes safely and hygienically, without using a heat source How to use techniques such as cutting, peeling and grating</p>
Year B	Topic	<p style="text-align: center;">Transport and Toys - Wheels and Axles</p> <p>Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle.</p>	<p style="text-align: center;">Transport and Toys - Wheels and Axles</p> <p>Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle.</p>	<p style="text-align: center;">Splash! - Food and Nutrition</p> <p>Making a cooling ice cream/Ice lolly will get the children tasting, exploring and thinking about a range of frozen snacks already on offer. The children will be encouraged to experience the flavours, textures and colours of different ice creams and ice lollies. They will then design and make their own.</p>



Brockton C.E. Primary School

2 Year Rolling Program - Design and Technology



KS1/LKS2		Autumn	Spring	Summer
	Knowledge Progression	<p>Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Technical Knowledge apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Apply their understanding of computing to program, monitor and control their products</p>	<p>Design generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Make select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Evaluate explore</p> <p>Evaluate a range of existing products.</p> <p>Technical Knowledge Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).</p>	<p>Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Make select from and use a wider range of materials and components, including ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate investigate and analyse a range of existing products</p> <p>Evaluate their own ideas and products against their own design criteria and consider the ideas of others to improve their work</p> <p>Cooking and Nutrition understand and apply the principles of a healthy and varied diet</p> <p>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>Understand seasonality, and know how and where a variety of ingredients are grown, reared, caught and processed.</p>
Year A	Topic	<p>Innovation and Invention - Programming and Electronics</p> <p>The children will use woodworking DT tools and materials, card and paper or even scrap materials to make a decorative light box with illuminated words or letters.</p> <p>This unit can be combined with their science topic or Christmas to make a beautiful decoration.</p>	<p>Egypt - Mechanisms - Shadufs</p> <p>The children will research the Shaduf water carrying system that Egyptians used. They will look closely at the mechanism and re create their own. They will have the chance to look closely at the planning, designing and evaluating process of a product.</p>	<p>Africa - Cooking and Nutrition</p> <p>Design, make and evaluate our own fruit smoothies.</p> <p>This will give the children the opportunity to explore a variety of fruits. They will get their taste buds tingling as they taste a variety of fruits before choosing the fruit combination for their smoothie.</p>
KS1/LKS2		Autumn	Spring	Summer
	Knowledge Progression	<p>Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Make select from and use a wider range of materials and components, including ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate investigate and analyse a range of existing products</p> <p>Evaluate their own ideas and products against their own design criteria and consider the ideas of others to improve their work</p> <p>Technical Knowledge apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p>	<p>Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p> <p>Technical Knowledge that a single fabric shape can be used to make a 3D textiles product</p>	<p>Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Technical Knowledge apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p>
Year B	Topic	<p>Stone Age to the Iron Age - Structures - Stone Age Shelters</p> <p>Design, make and evaluate our own Stone Age shelter</p> <p>The children will investigate the materials available during the Stone and Iron age, they will then explore how these structures can be made stable. The children will apply this knowledge when making and evaluating their own Stone Age shelters.</p>	<p>Chocolate - Textiles</p> <p>The Aztecs were known for dyeing fabrics a deep scarlet colour courtesy of the cochineal beetle. In this unit the children will discover how fabrics are made, the differences between natural and synthetic fabrics as well as the impact that textile waste and fast fashion is having on our planet. The children will have the opportunity to design a handy bag using CAD.</p>	<p>Romans - Structures - Shields</p> <p>In this Roman Shields lesson the children will take a look at some Roman shields (called scutum), looking at size, patterns and colours. They are then challenged to design, make and evaluate Roman shields of their own, considering what materials, tools and equipment they will need to complete their designs</p>



Brockton C.E. Primary School

2 Year Rolling Program - Design and Technology



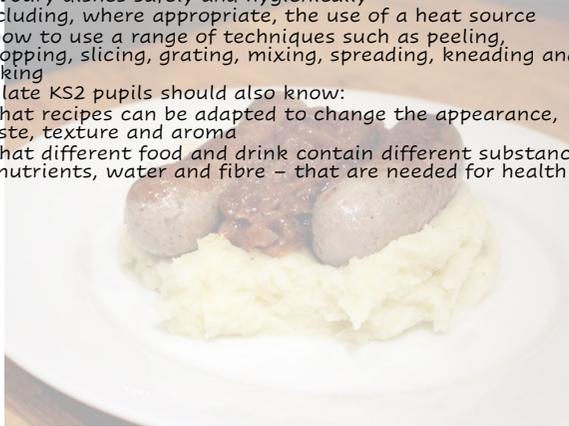
UKS2		Autumn	Spring	Summer
	Knowledge Progression	World War II Art Unit	<p>Design - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups, generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately, select from and use a wider range of materials and components, including construction materials, textiles according to their functional properties and aesthetic qualities</p> <p>Evaluate - investigate and analyse a range of existing products, evaluate their ideas and products against their own design criteria and consider the views of others to improve their work, understand how key events and individuals in design and technology have helped shape the world</p> <p>Technical knowledge - apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p>	Rivers Art Unit
Year A	Topic		<p>The Greeks - Textiles</p> <p>The children will understand that the Ancient Greeks had simple resources available to them and that they made sandals which were fit for purpose out of those available resources.</p> <p>They will create a sandal out of leather/thick material and straps. To consider this question: Are these sandals fit for purpose?</p>	
UKS2		Autumn	Spring	Summer
	Knowledge Progression	<p>Design - describe the purpose of their products. Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. In later KS2 pupils should also: Carry out research, using surveys, interviews, questionnaires and web-based resources Identify the needs, wants, preferences and values of particular individuals and groups Develop a simple design specification to guide their thinking Share and clarify ideas through discussion Model their ideas using prototypes and pattern pieces Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Use computer-aided design to develop and communicate their ideas</p> <p>Make - Produce appropriate lists of tools, equipment and materials that they need Formulate step-by-step plans as a guide to making</p> <ul style="list-style-type: none"> • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design <p>Evaluate - critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make Evaluate their ideas and products against their original design specification</p> <p>Technical Knowledge - that a recipe can be adapted by adding or substituting one or more ingredients</p>	<p>Anglo Saxons Art Unit</p>	<p>Design - carry out research, using surveys, interviews, questionnaires and web-based resources Identify the needs, wants, preferences and values of particular individuals and groups. Share and clarify ideas through discussion Model their ideas using prototypes and pattern pieces Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Use computer-aided design to develop and communicate their ideas.</p> <p>Make - Produce appropriate lists of tools, equipment and materials that they need. Formulate step-by-step plans as a guide to making. Accurately measure, mark out, cut and shape materials and components Accurately assemble, join and combine materials and components Accurately apply a range of finishing techniques, including those from art and design Use techniques that involve a number of steps Demonstrate resourcefulness when tackling practical problems</p> <p>Evaluate - Evaluate their ideas and products against their original design specification</p> <p>Technical Knowledge - how mechanical systems such as cams or pulleys or gears create movement</p>
Year B	Topic	<p>The Tudors - Food and Nutrition, Gingerbread Houses</p> <p>The children will get into the festive spirit by making their own edible houses. Medieval and Tudor people would create elaborate designs out of gingerbread using moulds. Constructing gingerbread was linked to religious beliefs at the time. The children will design, make and evaluate their ginger houses. They will also decorate their houses using a variety on confectionary.</p>		<p>Mountains—Moving Toys Mechanisms</p> <p>The children will investigate cam mechanisms and the toys that contain them. They will discover how different shaped cams can alter the movement of the follower and how to create a sturdy structure using a variety of tools and techniques.</p>



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		UKS2	Autumn	Spring	Summer
	Knowledge Progression		<p>Design - To find out about Shang cities. To read about Shang cities and retrieve useful information for the design of a game. To use research about Shang cities to develop design criteria for the game. To find out about what roles people had in Shang cities. To present research to groups who will evaluate ideas. To discuss ideas for different roles in the role-playing game To decide the rules of the game based on their knowledge of the Shang. To speculate and hypothesise in a collaborative conversation to design the game. To draw and model their ideas for the role-playing game. Make - To make the game based on their knowledge of the Shang. To present their finished pieces for the game. To make items for the role-playing game. To explain the game based on their knowledge of the Shang. To present their finished game to the school.</p>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that recipes can be adapted to change the appearance, taste, texture and aroma • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health 	<p>National Parks Art Unit</p>
Year C	Topic		<p style="text-align: center;">China –The Shang Dynasty</p> <p>Research the cities and societies of this dynasty, as well as the lives and roles of the people. Use your knowledge as the basis of your own board game about the Shang.</p> <p style="text-align: center;">Parks</p>	<p style="text-align: center;">British Empire</p> <p>The children learn all about great British food. They will explore some sweet and savoury national dishes of England, Scotland and Wales, before moving on to developing an understanding of how cuisines from other countries have influenced what is eaten in Britain today. Finally, children will practise the important life skill of how to plan and shop for a meal!</p>	